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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/987,202	11/13/2001	Bruno Scheumacher	P 284108 RP-00296-US2	6169

909 7590 09/13/2004

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EXAMINER	
LUBY, MATTHEW D	

ART UNIT	PAPER NUMBER
3611	

DATE MAILED: 09/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/987,202	SCHEUMACHER ET AL.	
	Examiner	Art Unit	
	Matt Luby	3611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *(the remand sent 4/29/04 to the Examiner*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10,12,13,15,16 and 24-27* is/are rejected.

7)☒ Claim(s) *11,14,17-23 and 28-30* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. If applicant desires priority under 35 U.S.C. 119(e) based upon a previously filed application, specific reference to the earlier filed application must be made in the instant application. For benefit claims under 35 U.S.C. 120, 121 or 365(c), the reference must include the relationship (i.e., continuation, divisional, or continuation-in-part) of the applications. This should appear as the first sentence of the specification following the title, preferably as a separate paragraph unless it appears in an application data sheet. The status of nonprovisional parent application(s) (whether patented or abandoned) should also be included. If a parent application has become a patent, the expression "now Patent No. _____" should follow the filing date of the parent application. If a parent application has become abandoned, the expression "now abandoned" should follow the filing date of the parent application. If the application is a utility or plant application filed under 35 U.S.C. 111(a) on or after November 29, 2000, the specific reference must be submitted during the pendency of the application and within the later of four months from the actual filing date of the application or sixteen months from the filing date of the prior application. If the application is a utility or plant application which entered the national stage from an international application filed on or after November 29, 2000, after compliance with 35 U.S.C. 371, the specific reference must be submitted during the pendency of the application and within the later of four months from the date on which the national stage commenced under 35 U.S.C. 371(b) or (f) or sixteen

months from the filing date of the prior application. See 37 CFR 1.78(a)(2)(ii) and (a)(5)(ii). This time period is not extendable and a failure to submit the reference required by 35 U.S.C. 119(e) and/or 120, where applicable, within this time period is considered a waiver of any benefit of such prior application(s) under 35 U.S.C. 119(e), 120, 121 and 365(c). A priority claim filed after the required time period may be accepted if it is accompanied by a grantable petition to accept an unintentionally delayed claim for priority under 35 U.S.C. 119(e), 120, 121 and 365(c). The petition must be accompanied by (1) the reference required by 35 U.S.C. 120 or 119(e) and 37 CFR 1.78(a)(2) or (a)(5) to the prior application (unless previously submitted), (2) a surcharge under 37 CFR 1.17(t), and (3) a statement that the entire delay between the date the claim was due under 37 CFR 1.78(a)(2) or (a)(5) and the date the claim was filed was unintentional. The Director may require additional information where there is a question whether the delay was unintentional. The petition should be addressed to: Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Therefore, until Applicants perfect their claim of priority to 60/547,052, the earliest priority date for examination purposes will be treated as 11/31/01 (which is the filing date of the application).

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The limitation "via a third duct member" is vague and indefinite because claim 12 depends from claim 4 and no first or second duct members were claimed in either claim 12 or claim 4.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-2 and 26 are rejected under 35 U.S.C. 102(e) as being anticipated by Yatagai et al. (6,561,297)

As per claims 1 and 26, Yatagai et al. disclose a snowmobile (1), comprising: a frame (10); an engine (2); an endless belt-drive system (15); an air intake system for the engine (col. 10, lines 19-38); and the frame having a forward portion (11) and an aft portion (12); wherein the engine is mounted to the forward portion (col. 6, lines 54-55), the belt drive system being mounted to the aft portion and operatively connected to the engine (shown in Figure 9); the engine being a turbocharged (by 7, see col. 9, lines 43-

44) four-stroke type engine (col. 9, lines 34-37), wherein the turbocharger is disposed on a starboard side of the engine (shown in Figure 10).

As per claim 2, Yatagai et al. disclose that the engine includes at least one cylinder, each cylinder having a respective combustion chamber having an air inlet capable of communicating with each of the combustion chambers and an exhaust outlet capable of communicating with each of the combustion chambers; the air intake system comprising: an air passage communicated with the atmosphere, the air passage being a substantially hollow enclosed structure, a turbocharger connected to the air passage such that air from the air passage may enter the turbocharger, the turbocharger communicating with the exhaust outlet and being constructed and arranged such that a flow of exhaust gases from the exhaust outlet through the turbocharger affects a pressurization of air therein (col. 10, lines 2-46).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1, 2, 5, 6, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Atsuumi et al. (U.S. Patent No. 6,454,037) view of Minami et al. (U.S. Patent No. 4,475,617). (Note as was assumed on page 3 of the Examiner's Answer, claim 16 should apparently depend from claim 15 and not from claim 14.)

As per claims 1, 2, 6, 15 and 16, Atsuumi et al. disclose a snowmobile (30), comprising: a frame (32); an engine (54); an endless belt-drive system (58); an air intake system for the engine (220); and the frame having a forward portion (made up of components including 36 and 38) and an aft portion (made up of components including 46); wherein the engine is mounted to the forward portion (shown in Figures 1 and 2), the belt drive system being mounted to the aft portion and operatively connected to the engine (shown mounted to the after portion in Figure 1; shown operatively connected to the engine in Figure 1); the engine being a four-stroke type engine (col. 6, lines 5-6); that the engine includes at least one cylinder (in cylinder block 140 are cylinder bores 170), each cylinder having a respective combustion chamber (174) having an air inlet (224, 226) capable of communicating with each of the combustion chambers (col. 8, lines 22-24) and an exhaust outlet (250) capable of communicating with each of the combustion chambers (col. 8, lines 32-37); the air intake system comprising: an air passage (234) communicated with the atmosphere (col. 8, lines 20-22), wherein the air passage being a substantially hollow enclosed structure (as shown in Figure 3) and positioned aft of the engine in spaced relation thereto (passage, 234, is shown spaced aft from engine, 54, in Figure 3). The modified Atsuumi et al. invention do not teach a turbocharger connected to the air passage such that air from the air passage may enter the turbocharger, the turbocharger communicating with the exhaust outlet and being constructed and arranged such that a flow of exhaust gases from the exhaust outlet through the turbocharger and then to the atmosphere, affects a pressurization of air therein, wherein the exhaust system includes a muffler. Minami et al. disclose a small,

personal vehicle for a rider and possibly a passenger (11, Figure 1) having a four-stroke engine (13, col. 2, lines 59-61) with a turbocharger (37) connected to an air passage (45) such that air from the air passage may enter the turbocharger (col. 3, lines 16-22), the turbocharger communicating with the exhaust outlet and being constructed and arranged such that a flow of exhaust gases from the exhaust outlet through the turbocharger and then to the atmosphere affects a pressurization of air therein, (col. 1, lines 40-43; col. 2, lines 64-67 and col. 3, lines 6-15) wherein the exhaust system includes a muffler (52), in order to increase power output of the engine (col. 1, lines 15-17). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide a turbocharger connected to the air passage such that air from the air passage may enter the turbocharger, the turbocharger communicating with the exhaust outlet and being constructed and arranged such that a flow of exhaust gases from the exhaust outlet through the turbocharger and then to the atmosphere affects a pressurization of air therein, wherein the exhaust system includes a muffler on Atsuumi et al., as taught by Minami et al., in order to increase power output of the engine.

As per claim 5, the Atsuumi et al. in view of Minami et al. invention discloses the claimed invention except for the air passage being positioned forward of the engine in spaced relation thereto. It would have been obvious to one having ordinary skill in the art at the time the invention was made to arrange the air passage forward of the engine in spaced relation thereto in order to prevent air from blowing hot air rearwards from the engine and thereby allowing the air passage to operate at a cooler temperature, since it

has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70

8. Claims 3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Atsuumi et al. in view of Minami et al. as applied to claims 1 and 2 above, and further in view of Roettgen et al. (U.S. Patent No. 4,565,177).

The modified Atsuumi et al. invention disclose all of Applicants' claimed invention except for a heat exchanger formed of a heat conductive material connected to the turbocharger such that pressurized air from the turbocharger may enter therein, the heat exchanger being constructed and arranged such that heat from the pressurized air is dissipated therefrom to the atmosphere via the heat conductive material, wherein the heat exchanger is an intercooler, the intercooler including an intake portion and an outlet portion, the intake and outlet portions connected by series of spaced hollow conduits. Roettgen et al. disclose a heat exchanger (col. 1, line 14) formed of a heat conductive material (metal; abstract: lines 1-5) connected to the turbocharger such that pressurized air from the turbocharger may enter therein (col. 1, lines 12-25), the heat exchanger being constructed and arranged such that heat from the pressurized air is dissipated therefrom to the atmosphere via the heat conductive material (column describes that the heat is transferred from the pressurized, heated air coming from the turbocharger to the fluid cooling medium; the abstract mentions that the heat exchanger of Roettgen et al. can be constructed of metal, which is a heat conductive material, and will therefore dissipate at least some, if not most, heat that is transferred to the cooling medium into the surrounding atmosphere), wherein the heat exchanger is an intercooler

(Roettgen et al. mention at col. 1, lines 12-14 that an aftercooler or intercooler are interchangeable types of heat exchangers and that it is long been conventional to increase the specific output of a supercharged or turbocharged engine by use of one), the intercooler including an intake portion (24) and an outlet portion (48), the intake and outlet portions connected by series of spaced hollow conduits (the spaced hollow conduits between the fins, as shown in Figure 4) in order to increase the air density and thereby help generate a greater amount of energy upon combustion (col. 1, lines 20-25). It would have been obvious to one of ordinary skill in the art, at the time of the invention, to provide a heat exchanger formed of a heat conductive material connected to the turbocharger such that pressurized air from the turbocharger may enter therein, the heat exchanger being constructed and arranged such that heat from the pressurized air is dissipated therefrom to the atmosphere via the heat conductive material on the modified Atsuumi et al. device, as taught by Roettgen et al., in order to increase the air density and thereby help generate a greater amount of energy upon combustion.

9. Claims 4 and 13 rejected under 35 U.S.C. 103(a) as being unpatentable over Atsuumi et al. in view of Minami et al. and further in view of Roettgen et al., as applied to claim 3 above, and still further in view of Middlebrook (U.S. Patent No. 6,293,264).

The modified Atsuumi et al. invention disclose all of Applicants' claimed invention except for a plenum connected to the heat exchanger such that air from the heat exchanger may enter the plenum, the plenum further connected to the air inlet (of the engine) and constructed and arranged such that cyclically pressurized amplitude of the air from the turbocharger via the heat exchanger may collect therein such that the

pressurization amplitude of the air upon exiting the plenum and entering the air inlet is substantially constant (this limitation is interpreted to mean that when air having a cyclically pressurized amplitude from a turbocharger or supercharger passes through a heat exchanger and then a plenum, the plenum makes the pressure amplitude substantially constant prior to entering the air inlet/engine cylinders). Middlebrook discloses a plenum (20) connected to the heat exchanger (16) such that air from the heat exchanger may enter the plenum (claim 1, part (c)), the plenum further connected to the air inlet (col. 4, lines 40-47) and constructed and arranged such that cyclically pressurized amplitude of the air from the turbocharger via the heat exchanger may collect therein such that the pressurization amplitude of the air upon exiting the plenum and entering the air inlet is substantially constant (col. 2, lines 8-45) in order to provide an easily bolted-on aftercooler (col. 2, line 20) which provides uniform and straight airflow from the intake plenum, through the heat exchanger and to the intake ports of the cylinders (col. 2, lines 46-50). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide a plenum connected to the heat exchanger such that air from the heat exchanger may enter the plenum, the plenum further connected to the air inlet (of the engine) and constructed and arranged such that cyclically pressurized amplitude of the air from the turbocharger via the heat exchanger may collect therein such that the pressurization amplitude of the air upon exiting the plenum and entering the air inlet is substantially constant on the modified Atsuumi et al. invention, as taught by Middlebrook, in order to provide an easily bolted-on aftercooler

which provides uniform and straight airflow from the intake plenum, through the heat exchanger and to the intake ports of the cylinders.

10. Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Atsuumi et al. in view of Minami et al. and further in view of Roettgen et al. as applied to claim 7 above, and further in view of Fields et al. (4,249,626).

As per claims 8 and 10, the modified Atsuumi et al. invention disclose all of Applicant's claimed invention except that the heat exchanger is positioned proximate the forward portion of the frame, and the intercooler is arranged generally normally to the oncoming air flow, parallel to the oncoming air flow or at an angle to the oncoming air flow. Fields et al. disclose a heat exchanger (20) for a snowmobile that is arranged generally normally or at an angle to the oncoming air flow (Figure 1 shows that element 20 is generally normal to the oncoming air flow and Figure 4 shows that the element 20 is at a slight angle, A, to the oncoming air flow) in order to provide optimum operation with increased air flow through the heat exchanger (col. 4, lines 36-61). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide that the heat exchanger is positioned proximate the forward portion of the frame, and the intercooler is arranged generally normally to the oncoming air flow or at an angle to the oncoming air flow on the modified Atsuumi et al. snowmobile, as taught by Fields et al., in order to provide optimum operation with increased air flow through the heat exchanger. As per claim 9, the modified Atsuumi et al. in view of Fields et al. invention discloses the claimed invention except for the heat exchanger being arranged generally parallel to the oncoming air flow. It would have been obvious to one having ordinary

skill in the art at the time the invention was made to arrange the heat exchanger generally parallel to the oncoming air flow to provide maximum surface area for convection type cooling, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

11. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Atsuumi et al. in view of Minami et al., as applied to claim 1 above, and further in view of Sokolowski (5,598,820).

The modified Atsuumi et al. invention discloses all of Applicant's claimed limitations except that the engine is of a V-twin two cylinder type engine. Sokolowski discloses a small, personal vehicle having a V-twin two cylinder type engine (col. 8, lines 58-59) in order to provide an engine configuration which provides greater torque and power output (abstract lines 1-2). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide that the engine is of a V-twin two cylinder type on the modified Atsuumi et al. invention, as taught by Sokolowski, in order to provide an engine configuration which provides greater torque and power output.

12. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Atsuumi et al. in view of Minami et al., as applied to claim 1 above, and further in view of Marrier et al. (5,660,245).

The modified Atsuumi et al. invention discloses all of Applicant's claimed limitations except that the engine is of an in-line, multi-cylinder type engine. Marrier et al. disclose a snowmobile having an in-line, multi-cylinder type engine (col. 5, lines 50-52) in order to allow the engine to be offset to one side of the engine compartment,

thereby creating more room in the engine compartment (col. 5, lines 55-67). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide that the engine is of an in-line, multi-cylinder type on the modified Atsuumi et al. invention, as taught by Marrier et al. in order to allow the engine to be offset to one side of the engine compartment, thereby creating more room in the engine compartment.

13. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yatagai et al.

Yatagai et al. disclose the claimed invention except for the turbocharger being arranged on the port side of the engine. It would have been obvious to one having ordinary skill in the art at the time the invention was made to arrange the turbocharger on the port side of the engine to provide more space in the engine compartment on the starboard side for a starboard side drive system, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

Allowable Subject Matter

14. Claims 11, 14, 17-23 and 28-30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

15. Claim 12 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Response to Board Decision

16. In response to the Board's decision, a new non-final rejection has been written and is supplied above.

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art cited relates to snowmobile engine structure and/or turbochargers/superchargers.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matt Luby whose telephone number is (703) 305-0441. The examiner can normally be reached on Monday-Friday, 9:30 a.m. to 6:00 p.m..

19. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lesley Morris can be reached on (703) 308-0629. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

20. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Matt Luby
Examiner
Art Unit 3611

Matt Luby

M.I.
September 7, 2004